

REMARKS

In the Office Action the Examiner rejected all claims under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,002,445 to Fischer in view of U.S. Patent No. 2,381,050 to Hardinge. According to the Examiner, Fischer discloses an expandable element having a threaded axial bore 10. Also, according to the Examiner, although Fischer does not disclose that the expandable member has external threads, Hardinge teaches the use of external threads to enhance the gripping capability of the exterior surface of the device, thereby making it obvious to one of ordinary skill in the art to place external threads on the Fischer anchor as taught by Hardinge.

The claims have been amended to clarify that the external threads of the expandable element run the entire length of the element, and to add the additional limitation that the axial bore of the expandable element is fully threaded the entire length of the bore, a feature which is not disclosed in any prior art cited by the examiner.

Hardinge teaches the use of external threads only as a means of gripping a "nut structure 13" (col. 2, line 29) which is constructed as a tubular sleeve (col. 2, line 38), and which surrounds the expandable element. By employing an enlarged head or radially projecting flange 15 to abut against the outer surface of the distal bone fragment, the Hardinge device draws the proximal and distal bone fragments together. As so assembled, the device of Hardinge takes on a larger cross sectional area where the nut structure/tubular sleeve is located, and does not conform to the limitation of claim 1, that the surgical screw be formed of a monoblock body (2) having an essentially cylindrical configuration.

In addition, Hardinge does not utilize the external threads near the proximal end of the expandable element to provide gripping of the bone structure, as that portion of the expandable

element is encased within the tubular sleeve of the nut structure which, itself, presents a smooth exterior surface to the bore forming an inner portion of the bone. Thus, the device of Hardinge holds the bone fragments together by applying a compressive force between the expanded, distal end of the expandable element and the flange or enlarged head of the nut structure that is external to the surface of the bone. As such, at least one part of the Hardinge device, the external flange, necessarily remains external to the structures being joined.

Similarly, Fischer discloses no external threads at or near the proximal end of the expansible plug and, similarly to Hardinge, applies a compressive force between an expanded distal end 13 and a flange 6 that remains external to the bodies being joined by the device.

Neither Hardinge nor Fischer teaches the use of a generally cylindrical expanding element which, because of its shape, can be completely embedded within the bone structure prior to initiating the expansion of the distal end, and that requires no flange-structure to remain external of the bone. Claim 1, however, and all dependent claims 2 – 7, incorporate the limitation that the expandable element be generally cylindrical in shape, and have external threads along the entire length of the element. As so formed, the surgical screw of this invention can be fully embedded within the structures to be joined, and will have no external protrusions that may catch upon other structures, or otherwise adversely affect the smoothness of the bone surface proximate to the bore for insertion of the expandable element.

These features of claim 1 would not have been obvious to a person of ordinary skill in the art at the time this application was filed, and patentably distinguish the invention of this application from the prior art cited by the Examiner. Accordingly, Applicant respectfully requests the Examiner to reconsider his rejections of claims 1 – 8, and to enter a Notice of Allowance for claims 1 – 8 in light of the arguments presented herein.